

What is claimed is:

1. A sewing system for sewing fabric materials having increased thickness, comprising:
 - a sewing needle;
 - a presser foot moveable into engagement with the fabric material as the fabric material is being sewn by the sewing needle; and
 - a pressure control assembly, comprising an actuator linked to the presser foot for controlling the application of additional pressure to the presser foot in timed relation with the engagement of the fabric material by the sewing needle and presser foot as needed for compressing the fabric material during sewing and thereafter relieving such pressure to enable further incremental movement of the fabric material through the sewing system.
2. The sewing system of claim 1 and wherein the actuator comprises a cylinder, spring set or motor.
3. The sewing system of claim 1 and wherein the pressure control assembly further comprises a connector between the actuator and presser foot, and a compression spring for applying a nominal biasing force to the presser foot.

4. The sewing system of claim 3 and further comprising an adjustment plate between the compression spring and actuator for adjusting the biasing force of the compression spring.
5. The sewing system of claim 1 and further comprising a presser foot lift lever connected at one end to a drive system and at an opposite end to the presser foot for pivoting the presser foot toward and away from the fabric material to compress the fabric material as needed during a sewing operation.
6. The sewing system of claim 5 and wherein the drive system comprises an eccentric driven off a main drive shaft of the sewing system, a rocker arm mounted on the main drive shaft and connected to the eccentric, and a linkage connecting the eccentric to the presser foot lift lever for causing the presser foot lift lever to be pivoted upwardly in timed relation with the reciprocation of the sewing needle by the main drive shaft.
7. The sewing system of claim 1 and further comprising a top feed dog adjacent the sewing needle and a bottom feed dog below the top feed dog for engaging and pulling the fabric material therebetween.
8. The sewing system of claim 1 and further including a control system for controlling actuation of the actuator of the presser foot control system to selectively apply and release additional pressure to the fabric material.

9. A method of sewing a thick fabric material, comprising:
- moving the fabric material through a sewing station and penetrating the fabric material with a sewing needle;
 - as the sewing needle penetrates the fabric material, moving a presser foot against an upper surface of the fabric material in timed relation with the movement of the sewing needle through the fabric material;
 - at about the same time, engaging an actuator to apply an additional compressive force to the presser foot as needed to sufficiently compress the fabric material for sewing;
 - deactivating the actuator as the sewing needle begins a return stroke to release the additional compressive force from the presser foot;
 - moving the presser foot away from the upper surface of the fabric material; and
 - engaging and moving the fabric material forwardly through the sewing station.
10. The method of claim 9 and wherein moving the presser foot against the upper surface of the fabric material comprises driving an eccentric linked to a presser foot lift lever off a main drive of the sewing station.

11. The method of claim 9 and wherein engaging and moving the fabric material comprises moving a top feed dog into engagement with the upper surface of the fabric material and pulling the fabric material forwardly.
12. The method of claim 11 and wherein the fabric material is advanced incrementally through the sewing station.
13. The method of claim 9 and further comprising applying a nominal biasing force to maintain the presser foot in engagement with the upper surface of the fabric material.
14. The method of claim 9 and further comprising adjusting the additional compressive force applied to the presser foot.
15. The method of claim 9 and wherein the fabric material is compressed an amount sufficient to ensure that the sewing needle penetrates the fabric material to a point at which a thread carried by the needle will be engaged by a looper of the sewing station.
16. A method of sewing a work piece having an increased thickness, comprising:
 - inserting a sewing needle carrying a thread into the work piece;
 - moving a presser foot into compressive engagement against an upper surface of the work piece in timed relation with the movement of the needle into and through the work piece;

applying a compressive force with the presser foot so as to compress the work piece to a level sufficient to ensure penetration of the needle through the work piece to a depth at which the thread carried by the needle will be engaged by a looper;

releasing the compressive force and moving the presser foot away from the upper surface of the work piece in timed relation with a return stroke of the needle; and

engaging and advancing the work piece forwardly to advance the sewing operation for the work piece.

17. The method of claim 16 and wherein engaging and moving the fabric material comprises moving a top feed dog into engagement with the upper surface of the fabric material and pulling the fabric material forwardly.
18. The method of claim 17 and wherein the fabric material is advanced incrementally through the sewing station.
19. The method of claim 16 and further comprising adjusting the additional compressive force applied to the presser foot.
20. The method of claim 16 and wherein applying a compressive force comprises engaging an actuator to apply additional pressure to the presser foot against the work piece as needed to compress the work piece.

21. The method of claim 16 and wherein applying a compressive force comprises exerting a biasing force against the presser foot so as to urge the presser foot downwardly against the work piece.
22. The method of claim 21 and wherein releasing the compressive force comprises engaging an actuator to urge the presser foot upwardly against the biasing force applied to the presser foot.